

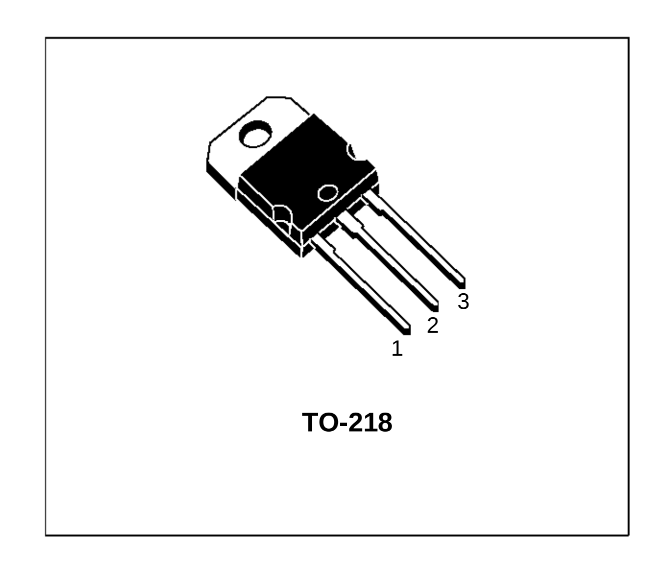
TIP141/142
TIP146/147

COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

- SGS-THOMSON PREFERRED SALESTYPES

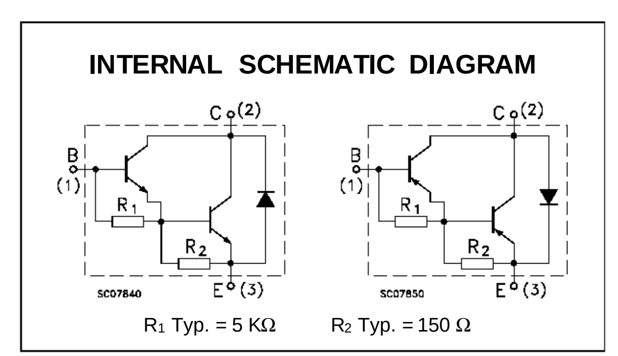
DESCRIPTION
The TIP141and TIP142 are silicon epitaxial-base NPN power transistors in monolithic Darlington configuration and are mounted in TO-218 plastic package. They are intented for use in power linear and switching applications.

The complementary PNP types are TIP146 and TIP147 respectively.



TO-218

INTERNAL SCHEMATIC DIAGRAM



R_1 Typ. = 5 KΩ R_2 Typ. = 150 Ω

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value		Unit
		NPN	TIP141	TIP142	
		PNP	TIP146	TIP147	
V_{CBO}	Collector-Base Voltage (I_E = 0)		80	100	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)		80	100	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)		5		V
I_C	Collector Current		10		A
I_{CM}	Collector Peak Current		20		A
I_B	Base Current		0.5		A
P_{tot}	Total Dissipation at $T_{case} \leq 25$ °C		125		W
T_{stg}	Storage Temperature		-65 to 150		°C
T_j	Max. Operating Junction Temperature		150		°C

* For PNP types voltage and current values are negative.

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1	$^oC/W$

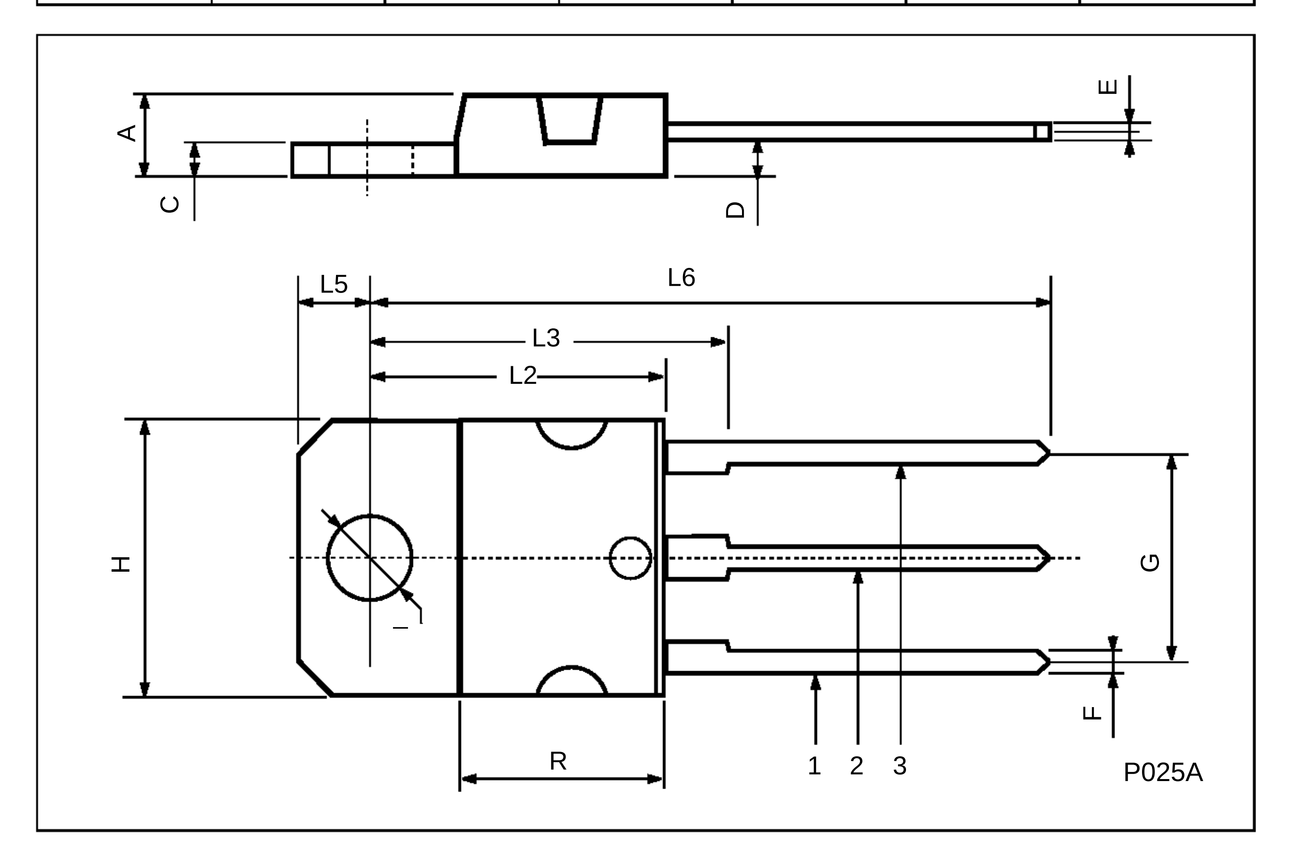
ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	for **TIP141/146** V_{CB} = 80 V for **TIP142/147** V_{CB} = 100 V			1 1	mA mA
I_{CEO}	Collector Cut-off Current (I_B = 0)	for **TIP141/146** V_{CE} = 40 V for **TIP142/147** V_{CE} = 50 V			2 2	mA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EBO} = 5 V			2	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage (I_B = 0)	I_C = 30 mA for **TIP141/146** for **TIP142/147**	 80 100			 V V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 5 A I_B = 10 mA I_C = 10 A I_B = 40 mA			2 3	V V
$V_{BE(on)}$*	Base-Emitter Voltage	I_C =10 A V_{CE} = 4 V			3	V
h_{FE}*	DC Current Gain	I_C = 5 A V_{CE} = 4 V I_C = 10 A V_{CE} = 4 V	1000 500			
t_{on}	Turn-on Time	IC = 10 A I_{B1} = 40 mA I_{B2} = -40 mA R_L = 3 Ω		0.9		μs
t_{off}	Turn-off Time			4		μs

* For PNP types voltage and current values are negative.

TO-218 (SOT-93) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.7		4.9	0.185		0.193
C	1.17		1.37	0.046		0.054
D		2.5			0.098	
E	0.5		0.78	0.019		0.030
F	1.1		1.3	0.043		0.051
G	10.8		11.1	0.425		0.437
H	14.7		15.2	0.578		0.598
L2	–		16.2	–		0.637
L3		18			0.708	
L5	3.95		4.15	0.155		0.163
L6		31			1.220	
R	–		12.2	–		0.480
Ø	4		4.1	0.157		0.161




SGS-THOMSON
MICROELECTRONICS